

Prices are in pounds sterling and are valid from 1st January, 2007.

AIS Receiver 1                      USB power                      Channel A                      Black                      KAT100                      £ 175.00 (B)  
AIS Receiver 1                      USB power                      Channel B                      Black                      KAT120                      £ 175.00 (B)  
*Supplied with AIS Starter Disc, USB power lead, Audio lead and User-Operation Guide.  
These units are to get no further development, being effectively replaced by KAT200.*

AIS Receiver/Decoder 1 (Serial)                      USB power                      Channel A                      Black                      KAT200                      £ 185.00 (B)  
AIS Receiver/Decoder 1 (Serial)                      USB power                      Channel B                      Black                      KAT204                      £ 185.00 (B)  
*Supplied with AIS Starter Disc, USB power lead, Serial lead, GPS Y-adapter,  
User-Operation Guide and 'Multi-Mode' Guide.*

AIS Receiver/Decoder 1 (Serial)                      Ext. UK psu                      Channel A                      Black                      KAT210                      £ 225.50 (B)  
AIS Receiver/Decoder 1 (Serial)                      Ext. UK psu                      Channel B                      Black                      KAT214                      £ 225.50 (B)  
*Supplied with AIS Starter Disc, UK-type 3-pin linear power supply, Serial lead,  
GPS Y-adapter, User-Operation Guide and 'Multi-Mode' Guide.*

AIS Receiver/Decoder 1 (Serial)                      Ext. Intl psu                      Channel A                      Black                      KAT220                      £ 235.00 (B)  
AIS Receiver/Decoder 1 (Serial)                      Ext. Intl psu                      Channel B                      Black                      KAT224                      £ 235.00 (B)  
*Supplied with AIS Starter Disc, Multi-voltage s/m power supply with interchangeable  
adapters, Serial lead, GPS Y-adapter, User-Operation Guide and 'Multi-Mode' Guide.*

AIS Receiver/Decoder 1 (USB-A)                      Bus-powered                      Channel A                      Black                      KAT240                      £ 195.00 (B)  
AIS Receiver/Decoder 1 (USB-A)                      Bus-powered                      Channel A                      White                      KAT242                      £ 195.00 (B)  
AIS Receiver/Decoder 1 (USB-A)                      Bus-powered                      Channel B                      Black                      KAT244                      £ 195.00 (B)  
AIS Receiver/Decoder 1 (USB-A)                      Bus-powered                      Channel B                      White                      KAT246                      £ 195.00 (B)  
*Supplied with AIS Starter Disc, User-Operation Guide and 'Multi-Mode' Guide.*

KATAS OnBoard for AIS Engine - see <http://www.katas.co.uk/onboard.htm>                      KAT700                      £ 59.00 (A)  
KATAS All Messages Chip for AIS Engine - see [www.katas.co.uk/amc.htm](http://www.katas.co.uk/amc.htm)                      KAT710                      £ 25.00 (A)  
SO-259 to BNC plug adapter. Allows the use of aerials with PL-259 plug.                      KAT822                      £ 4.00 (A)  
Alternative mains power supply for USB-powered receivers. UK version.                      KAT885                      £ 16.00 (B)  
Alternative mains psu for USB-powered receivers, Europe version.                      KAT886                      £ 16.00 (B)

#### Carriage charges

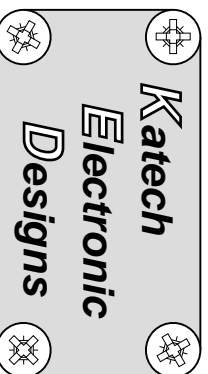
Carriage charges quoted are for deliveries within the United Kingdom and Mainland Europe. Please email for an individual quotation for other worldwide locations. For multiple items, the charge band applied will be that of the highest individual component within the package.

(A) = Free  
(B) = £ 5

#### How to order

Products within the KATAS range are sold directly by Katech Electronic Designs. Please e-mail to check stock levels and to place an order. Payment can be made either by PayPal, a secure on-line payment method or by mailed cheque following a faxed or e-mailed pro-forma invoice.

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# KATAS

[www.katas.co.uk](http://www.katas.co.uk)

## Calling all Shipping Enthusiasts and Photographers

Now there is a way to electronically predict when a ship you are interested in is about to sail round the bend or emerge from the docks. No longer is it necessary to rely on instinct and binoculars.

Since 2004, most passenger vessels and cargo ships of 300 tonnes or over, have been fitted with class A VHF radio transponders which automatically broadcast digital information giving, amongst other data, the ship's name, type, destination and size. At more frequent intervals, and at a rate dependent upon the ship's speed, navigational information is also sent, such as position, course, speed and heading. This system is known as the Universal Automatic Identification System or just AIS for short.

KATAS is a system of electronic test tools for engineers to use whilst diagnosing faults with AIS systems. This leaflet briefly describes three AIS receiver types within the KATAS portable range that are suitable for shoreside or home-based monitoring using a PC-type computer and a suitable aerial.

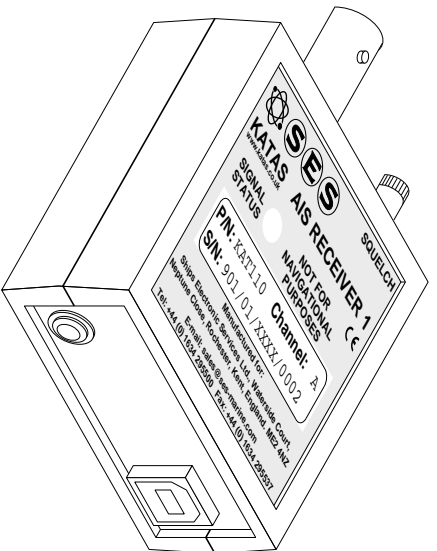
AIS transmissions are broadcast on two adjacent dedicated channels within the marine VHF band. The receivers described here are single channel units and can be specified to be either channel A or B upon ordering. Other receivers in the KATAS range receive signals from both frequencies, but for general monitoring, when reception is not time-critical, a more economic single-channel receiver is more than adequate.

KATAS AIS receivers have been exhaustively tested with the ShipPlotter software application for Windows PCs from Centro de Observação Astronómica no Algarve (COAA) in Portugal. This software is rapidly gaining in popularity amongst shipping enthusiasts and others interested in decoding digital signals from radio transmissions. This comprehensive software can display received messages textually as well as plotting the ships on a chart or image of the region. A RADAR-type display is also included which is useful if plotting whilst at sea (GPS receiver required). The software can use virtually any chart or image in BMP or JPG formats as the software allows manual calibration of points on the chart which can be surveyed or transferred from a paper chart or map. For users with an Internet connection, satellite images of any region can be instantly downloaded and calibrated for use as a backdrop. These images can be stored on your filing system to provide a comprehensive database of locations.

Each receiver is supplied with the KATAS AIS Starter Disc (ASD). This is a Windows-format CD-ROM that contains all the software that a new user will need to get up and running with a KATAS AIS receiver. In addition to a 21-day trial copy of the ShipPlotter application, the disc contains a large collection of copyright-free flat charts and satellite images of much of the UK coastline that are ready-calibrated for use with ShipPlotter. The disc also includes useful utility programs and manuals for other KATAS products as well as much ShipPlotter background information.

In addition to the well-established class A AIS systems, which are mandatory fittings on most seagoing commercial ships, there is a more-recently-implemented alternative-specification class B system which is more suited to inland commercial vessels. Such class B transponders are also being supplied as optional equipment for private leisure vessels as the installation is simpler and cheaper than for class A systems. AIS message types received from class B transponders are different than those from class A and are fully receivable and decodable by all KATAS receivers.

The latest firmware revision of each product is published on a support page of the KATAS web site. Firmware versions will be continually reviewed and updated, where necessary.



## AIS Receiver 1 (AR1)

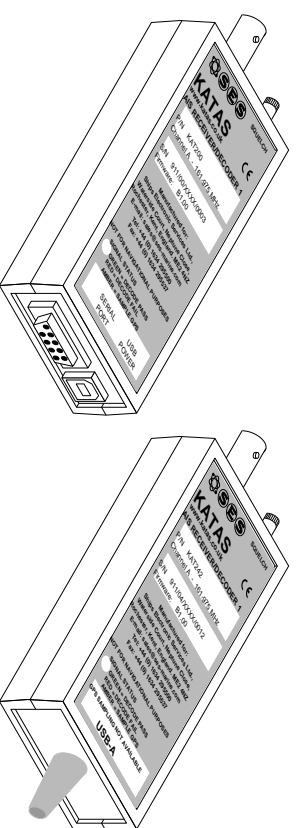
The KATAS AIS Receiver 1 is a single channel receiver without any signal decoding electronics. It is designed exclusively for use with the ShipPlotter PC charting program which is able to decode the signals in software whilst taking its source from the computer's audio input. At the time of writing, this is thought to be the only application of its type which can fully decode AIS signals entirely in software. The receiver has a signal status LED and a rotary squelch control which can effectively mask signals from distant ships if required. Available in channel A or B versions, it is housed in a miniature black plastic enclosure with the unit taking its power from the computer's USB port. The unit has no data connection to the computer, the USB connection is simply to provide a convenient way of powering the receiver since its power requirements are low. The continued use of the AIS Receiver 1 after the initial trial period requires a separate payment for the ShipPlotter application. At the time of writing, the cost of this is 25 Euros plus local taxes for non-commercial use. Once the application has been registered, the option of sharing and graphically displaying ship data from other ShipPlotter users worldwide via the Internet is made available.

The ShipPlotter application is well supported by its authors on a regularly-updated, Internet-based users' forum. There are many enthusiastic contributors to this forum worldwide and the archive section of the web pages can provide valuable information in case of difficulty. Whatever the technical questions, it is likely that a contributor has previously solved the same problem.

The minimum computer specification to run ShipPlotter effectively in audio decoding mode is for a system with a minimum 600MHz processor, as much RAM as possible and a 48kHz-sampling soundcard or motherboard facility. A minimum 1024x768 pixel high-colour display will be required for optimum display of the supplied charts and images. Full details can be found on the dedicated web site: <http://www.shipplotter.com>

In addition to the native KATAS AIS receivers described here, there is also available, two enhancement products for the popular AIS Engine. The first, the OnBoard module, gives the host receiver a near representation of the functionality of the KATAS ARD1 product (see below). The second, the All Messages Chip (AMC), is a simple microcontroller replacement which allows the decoding of all message types and offers an easier method of altering system settings. See <http://www.katas.co.uk/onboard.htm> and <http://www.katas.co.uk/amc.htm> for more details.

## AIS Receiver/Decoder 1 (ARD1)



### Serial version with USB-power

### USB-A version

The KATAS AIS Receiver/Decoder 1 range of receivers contain the same VHF receiver circuitry as the AIS Receiver 1 but also include local signal decoding electronics giving RS232 or USB output of NMEA IAIVDM and IAIVDO sentences instead of the audio-only output of the AIS Receiver 1. Again, the recommended use is with the ShipPlotter PC charting program, but operating in NMEA input mode rather than the audio mode as is required for the AIS Receiver 1.

The output from the AIS Receiver/Decoder 1 is ready-decoded and outputs in a standardised NMEA format and so many other graphical charting and data analysis programs can be used alternatively; the KATAS web site gives links to some of these. As the complex task of detecting and decoding the AIS signals is handled by the microcontroller within the AIS Receiver/Decoder 1, these units are useable with computers of less processing capability than what is demanded by ShipPlotter's audio decoding mode, used by the AIS Receiver 1.

There are two power supply options for the serial interface unit: for fully portable operation, the cost-effective USB powered version should be specified, which uses the USB lead as a means of powering the receiver. Alternatively, for home or office use where available USB ports may be limited, an externally-powered version can be supplied with a wall cube power supply in either UK or International variants. This version has extended RAM capacity allowing possible enhanced functionality with a future software upgrade and it can also be powered from a car cigar lighter socket using an optional (TBA) adapter lead.

The USB-A version addresses the problem that many modern notebook computers (and some desktops) are supplied without the provision of serial ports. The serial version offers best flexibility of use but the USB-A version can be more convenient than using external serial to USB adapters. As the USB-A version has no serial input facility, a GPS receiver cannot be connected to it for own position updating in a mobile situation. The use of the USB-A version with a PC type computer requires that a device driver be loaded, of which full instructions are provided.

In common with the professional dual-channel unit in the range (see web site for details of AIS Ship Monitor 2), the AIS Receiver/Decoder 1 units feature the comprehensive 'Multi-Mode' method of operation which dispenses with the complexity of needing a personal computer running a high-level application. Serial versions can be fed into a VT1100<sup>®</sup> compatible Wyse<sup>®</sup> or hp<sup>®</sup> data terminal which gives a high level of system reliability for continuous monitoring applications. In addition to providing the standard NMEA operation, 'Multi-Mode' presents a well-formatted, human-readable table of current ship data as well as a scrolling mode which gives individual signal strength and quality readings which is useful for diagnostic purposes. If a terminal is not available, or if the USB-A version is in use, this facility can still be utilised by the use of a terminal program such as TeraTerm, which is supplied on the AIS Starter Disc. A static position can be entered allowing range and bearing calculations to be displayed.